

REMARKS

Claims 2-19 and 21-36 have been cancelled. Claims 1 and 20 have been amended.

The primary prior art reference cited in the office action is Alt (U.S. Pat. No. 5,458,622). Alt discloses an implantable medical device having a tachycardia detection capability to distinguish a pathologic tachycardia from a physiologic tachycardia based upon a detection of patient activity when a change in patient heart rate is detected. The patient activity may be detected on the basis of blood pressure. The threshold heart rate for tachycardia detection is changed depending upon whether patient activity indicates that the detected change in heart rate is due to a physiologic basis.

Bardy et al. (U.S. Pat. No. 5,257,621) discloses a defibrillator having an arrhythmia detection capability to distinguish high rate monomorphic ventricular tachycardia from ventricular fibrillation. Bardy teaches to activate the tachycardia/fibrillation discrimination function upon detection of a high heart rate. The discrimination function operates to determine the beat-to-beat variability of the measured heart rate intervals. Fibrillation is determined to exist if the beat-to-beat variability over a physician-programmable predetermined number of intervals exceeds a predetermined variability threshold.

In summary, Alt teaches to use patient physical activity level to determine whether a high heart rate is pathologic or physiologic (i.e., whether it is due to tachycardia or due to exercise). Bardy teaches to discriminate between high rate tachycardia and fibrillation on the basis of beat-to-beat variability after a high heart rate has been detected.

The office action combines Alt and Bardy and concludes that the claimed subject matter of the present invention is obvious. The office action finds that while Alt does not disclose a detection method wherein a number of intervals detected (NID) threshold is invoked, Bardy does. Applicant does not dispute those characterizations. However, the office action goes on to characterize the NID threshold in Bardy as being adjustable based upon measurements associated with current heart rate that is indicative of a hemodynamic parameter/physiologically-sensed parameter. Applicant respectfully disagrees with the characterization of Bardy in that regard.

The detection method of Bardy is illustrated in Figs. 8-9. The NID threshold is shown in step 638 of Fig. 10. As described in Bardy, the R-R interval counts may be used to signal detection of a particular arrhythmia (ventricular fibrillation, fast ventricular tachycardia or lower rate ventricular tachycardia), which corresponds to a "rate zone." Each rate zone has its own defined number of intervals required for detection or "NID." So, when the R-R interval counts within a rate zone reach the NID, there is deemed to be detection of that particular arrhythmia. The rate zone NID's in Bardy are not, however, adjustable based upon rate. A different NID may exist for each rate zone, but the NID for a rate zone is not adjusted other than by physician programming. The only adjustable threshold in Bardy, which can be adjusted as a function of the average value of the preceding series of R-R intervals, is the beat-to-beat variability threshold at step 644 of Fig. 10.

Accordingly, modifying the PCD of Alt to include an NID threshold as disclosed in Bardy does not result in the claimed subject matter of claims 1 and 20. As set forth in claims 1 and 20, a different NID for tachycardia detection is invoked depending upon

whether a blood pressure sensor detects a substantial drop in blood pressure when there is detection of a heart rate greater than the heart rate threshold value. If a substantial drop in blood pressure is detected, a lower NID is invoked for tachycardia detection.

Applicant submits that all pending claims are in condition for allowance and requests that a notice of allowance should be issued in due course.

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